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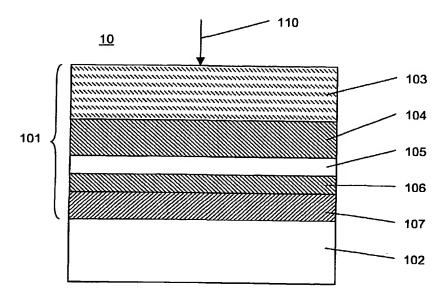
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[Continued on next page]

(54) Title: REWRITABLE OPTICAL RECORD CARRIER



(57) Abstract: A rewritable optical record carrier comprising a first substrate carrying a first recording stack of layers, which recording stack comprises, a first dielectric layer, a recording layer comprising a phase-change recording material, a second dielectric layer, and a metal mirror layer. In order to achieve a maximum difference between the reflection of the crystalline regions and the amorphous region, said first dielectric layer has a thickness d1 in the range of 20 nm to 50 nm, and said second dielectric layer has a thickness d2 according to the relation $0.0225*d_2^2 - 2.6572*d_2 + 173.3(nm) < d_1 < 0.0225*d_2^2 - 2.6572*d_2 + 213.3(nm)$ when the mirror layer comprises aluminum, or a thickness d_2 according to the relation $0.0191*d_2^2 - 2.0482*d_2 + 149.6$ (nm) $< d_1 < 0.0191*d_2^2 + 149.6$ - 2.0482*d₂ + 189.6(nm) when the mirror layer comprises silver.

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SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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B. FIELDS SEARCHED				
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Documentation searched other than minimum documentation to the exte				
Electronic data base consulted during the international search (name of EPO-Internal	data base and, where practical,	search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
25 October 2001 (2001-10-25)	US 2001/033991 A1 (ZHOU GUO-FU) 25 October 2001 (2001-10-25) paragraphs '0046!,'0053!; figures 1,3			
WO 02 099796 A (ZHOU GUO-FU; J (NL); KONINKL PHILIPS ELECT 12 December 2002 (2002-12-12) page 9, line 13-29; figure 1 page 10, line 17-34; figure 2	RONICS NV ()	1-6		
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pct/IB 03/06131

			. 01712 307 30131		
Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 2001033991	A1	25-10-2001	CA CN WO EP JP	2377619 A1 1383550 T 0182297 A1 1279170 A1 2003532248 T	01-11-2001 04-12-2002 01-11-2001 29-01-2003 28-10-2003
WO 02099796	Α	12-12-2002	WO	02099796 A1	12-12-2002